AD_____

MIPR NUMBER 96MM6746

TITLE : Adapation to First Term Enlistment Among Women in the Marine Corps

PRINCIPLE INVESTIGATOR: Jessica Wolfe, Ph.D.

CONTRACTING ORGANIZATION: Veterans Administration Medical Center
Boston, Massachusettes 02130

REPORT DATE: October 1998

TYPE OF REPORT: Annual

PREPARED FOR: Commander
U.S. Army Medical Research and Material Command
Fort Detrick, Frederick, Maryland 21702-5012

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY *(Leave blank)*	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	October 1998	Annual (16 Sep 97 - 15 Sep 98)

4. TITLE AND SUBTITLE
Adaptation To First Term Enlistment Among Women in the Marine Corps

5. FUNDING NUMBERS
MIPR 96MM6746

6. AUTHOR(S)
Jessica Wolfe, Ph.D.

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Veterans Administration Medical Center
Boston, Massachusetts 02130

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)
U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

10. SPONSORING / MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES

19990419 001

12a. DISTRIBUTION / AVAILABILITY STATEMENT
Approved for Public Release: Distribution Unlimited

12b. DISTRIBUTION CODE

13. ABSTRACT *(Maximum 200 words)*

Rates of premature first-term attrition approach 50% among women Marines. We propose that adjustment to first term enlistment among women and men in the US Marine Corps (USMC) will be associated with distal factors (i.e., psychiatric histories, exposure to childhood stressors), proximal factors (i.e., task and socioemotional characteristics of the military setting) and their interaction. Further, gender differences in adjustment will be partially accounted for by gender differences in rates of exposure to certain distal and proximal events. This prospective, longitudinal study will assess female and male USMC recruits throughout the initial 18 months of their first-term enlistment. Distal factors and baseline mental and physical well being will be measured at the recruit depot. Proximal factors, occupational outcomes, and mental and physical well being will be assessed at the end of basic training, and at 9 and 18 months. This investigation will inform policy makers and clinicians concerned with improving retention in the USMC and optimizing both women's and men's performance and adaptation. The current report details the rationale for this study, and describes the status of the project to date.

14. SUBJECT TERMS	15. NUMBER OF PAGES
Defense Women's Health Research Program childhood stressors; mntal/physical well being; attrition Marine Corps; workplace stress; gender	19
	16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	Unlimited

FOREWORD

Opinions, interpretations, conclusions and recommendations are those of the author and are not necessarily endorsed by the U.S. Army.

___ Where copyrighted material is quoted, permission has been obtained to use such material.

___ Where material from documents designated for limited distribution is quoted, permission has been obtained to use the material.

___ Citations of commercial organizations and trade names in this report do not constitute an official Department of Army endorsement or approval of the products or services of these organizations.

___ In conducting research using animals, the investigator(s) adhered to the "Guide for the Care and Use of Laboratory Animals," prepared by the Committee on Care and use of Laboratory Animals of the Institute of Laboratory Resources, national Research Council (NIH Publication No. 86-23 Revised 1985).

___ For the protection of human subjects, the investigator(s) adhered to policies of applicable Federal Law 45 CFR 46.

___ In conducting research utilizing recombinant DNA technology, the investigator(s) adhered to current guidelines promulgated by the National Institutes of Health.

___ In the conduct of research utilizing recombinant DNA, the investigator(s) adhered to the NIH Guidelines for Research Involving Recombinant DNA Molecules.

___ In the conduct of research involving hazardous organisms, the investigator(s) adhered to the CDC-NIH Guide for Biosafety in Microbiological and Biomedical Laboratories.

10/13/98

PI - Signature Date

Table of Contents

INTRODUCTION

Background and Significance

Women currently comprise nearly 14% of the active duty U.S. Armed Forces, and this rate is expected to grow as more women enlist in all branches of service, including the U. S. Marine Corps (USMC).[1] This change in the military workforce has required considerable attention to the needs of women.[1] The Marine Corps conceivably represents the most difficult service environment for women, with a strong male-oriented culture and the fewest women of all the service branches. Despite efforts of the USMC to adapt to its more diverse workforce, problems with first-term retention have been widely observed for females, with rates of attrition approaching 50%[2]. In comparison, rates of first term attrition for males range from 29-35%[3].

The Department of Defense incurs economic and personnel losses when recruits leave before the conclusion of the enlistment tour. In addition, separation from the military can impact the individual financially, occupationally, and emotionally. This project is designed to develop a model of how past life experiences are associated with the adjustment of female and male enlistees in the USMC, specifically, their successful adaptation and completion of the first-term of enlistment. The foundation of this project is based on variants of the *diathesis-stress model* which postulates that individuals enter settings (i.e., military service) with a wide range of behavioral, psychosocial, and familial characteristics. These characteristics, which may differ for women and men, constitute both strengths and vulnerabilities (diatheses), each of whose expression or effect is strongly influenced by the experiential context. Current data suggest that active duty personnel enter military service with a range of strengths and vulnerabilities (e.g., psychiatric and trauma histories[4]). We propose that preexisting vulnerabilities *(distal events)* interact with specific characteristics of the work setting *(proximal events)* to facilitate or inhibit positive adjustment to military enlistment. In this study, we systematically examine how both pre-military and military experiences culminate in differing levels of well-being and performance-based accomplishments (e.g., retention, promotion, skill advancement) for female and male enlistees during the first term of service. These data will inform military personnel, behavioral scientists, and health practitioners about the well-being of recruits and factors associated with the maintenance or enhancement of optimal behavioral and vocational outcomes in female Marine Corps enlistees, including attrition during the first-term of enlistment.

Overview of Related Findings

This section reviews three pertinent areas of inquiry. We first review descriptive data on current rates of women's attrition in the Armed Forces, in particular, the USMC, and discuss factors that are likely to be related to

retention and attrition patterns. We then review relevant distal life events and background characteristics associated with developmental and behavioral outcomes in adults, especially, women. We conclude with a review of pertinent, proximal factors associated with adult success in the workplace (e.g., task demand, social support) and discuss how interactions between distal events and proximal workplace characteristics are likely to relate to work adaptation and specific occupational outcomes in the military.

I. Correlates of Women's Retention and Attrition in the USMC.

Recent data show that women's attrition is approximately 1.5 times that of men's in the Marine Corps during the first term of service[2], a rate that is unacceptably high[4, 2]. Also, women's separation from the USMC tends to occur much earlier than men's, with between 20-50% of all female attrition occurring before the end of basic training. On the other hand, women who complete the first-term enlistment are less likely than men to attrite.

Data from numerous civilian occupational settings shows that an organizational focus on positive interpersonal factors (e.g., team orientation and respect for people) is associated with better employee retention.[5] Research in military samples corroborates these findings. [6,7] In some instances, organizational composition is related to abusive behaviors based on group membership. Generally, sexual harassment is far more prevalent in organizations where the gender ratio of men to women is high.[8] Given the current gender composition of the Armed Forces, and in particular, the overwhelmingly male USMC (95% male), it is possible that women in these settings are at substantially increased risk for sexual harassment or similar averse gender-related events. Survey data from a number of samples preliminarily support this possibility and suggest that sexual harassment experiences may be critical elements in women's initial adaptation to military life[9,10].

II. The Role of Developmental and Psychosocial Background on Adult Outcomes.

Research demonstrates that adults who have been sexually or physically abused as children are at substantially greater risk for the development or manifestation of psychopathology in adulthood.[11,12] Early abuse has been associated with a variety of negative outcomes including severely disturbed self-image and self-esteem, impaired trust, disrupted interpersonal relationships, behavioral impulsivity, dissociative symptoms, suicidality, and self-destructive or aggressive behavior.[11, 13] In terms of diagnosis, post-traumatic stress disorder (PTSD) is one of the most frequent outcomes.[14] This disorder has been widely associated with co-morbid conditions that independently or conjointly substantially impact vocational, social, and personal adjustment (e.g., clinical depression[15], antisocial

personality,[16] alcohol and drug use,[17] and legal infractions and incarceration).[18,19]

Recent research in military populations suggests that rates of childhood trauma, particularly physical and sexual abuse, are elevated in active duty military personnel, apparently at levels that substantially exceed civilian rates. [20,4,12] To date, very little longitudinal research has been conducted that examines the long-range consequences or military performance implications of such experiences. In one sample of 25 basic military trainees who were discharged for general mental health reasons, 40% reported experiencing childhood physical and/or sexual abuse.[21] This figure compares to a rate of 4% in a comparison group of 25 successful military trainees. Thus, certain background factors appear to play a role in military adaptation.

Additional research suggests that individuals with prior stressful backgrounds are at significantly greater risk for poorer adaptation following deployment or war-time exposure.[22,23,24] These findings confirm earlier civilian studies showing a robust association between early stressor exposure and subsequent stressor vulnerability.[25,26] This finding may extend in particular to women: Engel et al.,[27] for example, demonstrated that female Gulf War soldiers with histories of early sexual abuse were at significantly increased risk for developing *war-related* PTSD following military deployment although the mechanisms underlying this were not well specified. Anecdotal reports provided by USMC drill instructors to the principal investigator of this study suggest that some characteristics of Marine Corps recruit training may reactivate prior stress reactions.[28,20]

Other data suggest that demographic features, for example, enlistment age, constitute a latent risk factor for predicting functional outcomes during the first-term enlistment. Considerable psychiatric data show that susceptibility for the onset of a number of pronounced and debilitating psychiatric disorders (e.g., major depression) occurs during the late teens and early 20's. In many cases, expression of these disorders appears partly contingent upon exposure to external stressors.[29,30] It is not known to what degree underlying susceptibilities to major psychiatric or developmental problems are exacerbated by stresses encountered during military training and the first-term enlistment, nor whether women are at increased risk for these problems in certain settings given their relative risk for certain psychiatric diagnostic disorders (e.g., major depression).[31] Accordingly, this study recognizes that even brief assessment of psychosocial, developmental, and family psychiatric histories are needed to better evaluate the potential contribution of these factors to individual outcomes.

Although much is known about the association of early psychiatric risk factors and childhood trauma with negative outcomes, little is known about the factors linked to positive adjustment in those who experience these events. This information is critical for promoting and enhancing individual

capabilities and contextual (e.g., workplace) factors that are directly associated with positive military adjustment. One example of such a mediator is social support, which has been widely found to buffer sequelae of traumatic stressors or exposure to stress in a large variety of populations.[32,33,34] Accordingly, examination of this and related variables is likely to aid in developing more precise models of optimal recruit adjustment.

III. Occupational Setting and Adjustment: Civilian and Military Considerations.

Extant research increasingly demonstrates that there are pronounced effects of military service on functional status across the lifespan.[35,36] These effects appear to stem from a combination of positive and negative factors. Positive effects of military service include lower rates of mortality (at least through mid-life), gains in maturity, self-discipline, and self-esteem, and greater functional independence (vocational, social, financial). Negative aspects include demonstrable increases in rates of physical complaints, medical problems associated with prisoner-of-war status or extreme environmental deprivation and the development of psychiatric disorders,[37] and delays in psychosocial achievements or developmental milestones (e.g., marriage, education).[36] Other negative outcomes (e.g., post-traumatic stress disorder) that have been associated with military service or deployment are highly predictive of later additional problems, for example, substance abuse, violence or vocational instability, suggesting that the adverse effects of military service have far reaching implications.

Despite evidence for its existence, the relationship between distal stressor and traumatic events, psychopathology, and successful adaptation to active duty service is poorly understood. The limited research currently available describes data from older male veterans, with little or no information on younger cohorts or women. In addition, there is little research on the immediate or initial effects of military enlistment. This is surprising, given considerable evidence that contextual factors, in particular, aspects of the military work setting and the larger military community, interact with earlier experiences to strongly influence longer range adaptation and adjustment. Extrapolating from this research, two broad aspects of military service can be expected to significantly impact initial duty service: a) individual *military occupational (job) characteristics*, and b) *socioemotional features* associated with the job setting and the broader military community. In describing literature on each of these factors, we emphasize primarily job and socioemotional characteristics since, for first-term enlistees, contact with the larger community is likely to be limited.

Specific Aims

Data and anecdotal reports indicate that Marine Corps recruits are likely to face considerable psychological and physical challenges that vary

widely in their degree of controllability. Like most organizations, Marine Corps recruitment and training experiences reflect varying levels of social support and interpersonal conflict. Unique to the Marine Corps, workplace characteristics associated with the USMC's distinctive gender composition may cause particular experiences tied to group membership (i.e., harassment, discrimination) to be especially prevalent, even when leadership actively discourages this behavior. *Based on the considerable research reviewed, this study posits that the contextual factors described will be associated with psychological, physical, and vocational outcomes of female Marine recruits. Furthermore, contextual factors are likely to interact with individual vulnerabilities, resulting in notably poorer adaptation among recruits with past histories of psychopathology and abuse.* This interaction may be most robust in cases where contextual factors are reminiscent of the individual's early stressor experiences (e.g., perceptions of discrimination, conflict, criticism, and lack of respect).

Hypothesis 1. Past psychiatric and childhood abuse histories will differ for women and men, for example, higher childhood sexual abuse, depressive symptomatology among women and higher physical abuse and substance abuse among men.

Hypothesis 2. Particular socioemotional characteristics of the Marine Corps workplace (i.e., social support, conflict among colleagues) will differ for women and men (e.g., men will have greater access to work-related social support than will women).

Hypothesis 3. When individuals with the childhood exposures described above are in a military workplace characterized by a lack of social support and high conflict among colleagues, they will experience significantly higher attrition and poorer mental and physical health status and job performance (subsequently called *outcomes*) than will individuals without these vulnerabilities. Gender differences in outcomes (e.g., differences in attrition) will be accounted for by gender differences in the rates of exposure to particular childhood vulnerabilities and workplace characteristics.

Hypothesis 4. Other characteristics associated with the military workplace (e.g., high job demand and low control) will predict significantly poorer outcomes for women and men, regardless of preexisting vulnerabilities.

Hypothesis 5. Rates of exposure to certain noxious socioemotional experiences during enlistment, for example, discrimination and sexual harassment, will be higher for women than men and will result in poorer outcomes among women, regardless of preexisting vulnerabilities.

Research Design and Methodology

This study uses a cohort design in which we relate past *(distal)* events obtained retrospectively and current *proximal* events (i.e., military experiences) obtained through questionnaires to outcomes over eighteen

months of active duty. This is because personnel data from the USMC show that the vast majority of Marine attrition occurs during the first 18 months. In addition, based on the typical course of training and promotions, this time frame will provide substantive data on the performance of those who do *not* attrite since we will be able to obtain data on Marines' performance over several months in their military occupational specialties. We therefore are assessing USMC enlistees at four different time points over an eighteen month period: at the start of the first week of recruit training (*Time 1: baseline*), at the end of recruit training (*Time 2: 12 weeks*), at nine months (*Time 3*), and at 18 months (*Time 4*).

Outcome measures include: attrition, psychiatric and physical well-being, social-role functioning, and discrete outcomes described by the USMC and DOD including promotions, commendations, proficiency and conduct marks. ***Predictors*** of outcomes include past background characteristics and past life stressor experiences as well as current aspects of Marines' work and community experiences in the USMC.

At Time 1 (5/97-8/97), 826 women and 1021 men were recruited into the study at the recruit depot. Each participant was provided with a consent form that carefully described the study and requested permission to re-contact the Marine for subsequent follow-ups, regardless of his/her military status. All participants completed a written demographic questionnaire assessing background characteristics. In addition, participants completed paper and pencil survey items related to their pre-military background to provide an index of previous stressor experiences as well as self-report measures of health and well-being to be used as baseline data for computing changes over the course of enlistment.

At Times 2, 3, and 4, participants who have not attrited complete follow-up survey questionnaires that describe numerous aspects of their Marine Corps experiences related to training, work activities, and the broader Marine Corps community (Time 2 surveys were administered on site at Parris Island while Time 3 and 4 surveys are administered via mail). In addition, measures of health and well-being that were administered at baseline will be repeated. Also, at Times 2, 3, and 4, specific duty performance and retention measures that characterize the first-term enlistment will be included (e.g., military occupational ratings, military promotions, disciplinary actions, proficiency, and conduct marks) to assess vocational success and adjustment.

Those participants who attrite from the USMC during the course of the study also are assessed through the three follow-up time points. Enlistees who attrite during boot camp will be interviewed by on-site study personnel *prior* to leaving to review reasons for separation. For enlistees who attrite later, we will include a brief survey related to the separation at the first assessment point following discharge. At these subsequent assessment points, attritees will be administered the same health and well-being

measures as those who are retained. However, duty performance measures will be replaced by a comparable survey of recent vocational accomplishment and psychosocial status.

In summary, we are re-surveying each participant at three points post-baseline, regardless of their military status. Individuals who have left the service or who are deployed elsewhere (i.e., not at Parris Island) are resurveyed by mail using their most recent address or a permanent address location obtained from service records.

Status/Results to Date

Recruitment

In accordance with the statement of work included in our initial proposal, months 1-5 of the last fiscal year (10/1/96-2/30/97) were dedicated to the hiring and training of research staff and to the development and validation of our Time 1 (administered at the beginning of recruit training), Time 2 (administered just prior to graduation), and Time 2B (administered via mail to individuals who attrite during recruit training) surveys.

Instrumentation

Our Time 1 survey is a 31 page document (including title page and consent form) that was designed to obtain the following information: (1) demographics and personal history including educational background, and work, relationship and marital history; (2) personal resources/personality traits including self-esteem, problem solving style, hardiness, interpersonal instrumentality, and social support; (3) trauma history including exposure to childhood physical and sexual abuse and neglect, parental conflict, and community violence as well as adult exposure to sexual and physical assault; (4) psychological and substance use history; (5) current emotional well being including the assessment of symptoms of depression, anxiety and post-traumatic stress disorder; and (6) current physical well being and functioning. Additional questions designed to assess military-specific factors such as participant reasons for joining the USMC, perceived severity of training-specific stressors, perceived self-efficacy for successful completion of recruit training and perceived unit-cohesion were also included. These questions were constructed by our research team in consultation with numerous Marine Corps personnel on Parris Island.

Our Time 2 survey is a 28 page document that, like the Time 1 survey, used well validated measures to assess (1) personal resources and personality traits; (2) current emotional well being; and (3) current physical well being. Additional well validated measures designed to assess the perceived socioemotional characteristics of the training environment such as racial discrimination, sexual harassment, access to social support within the training unit, and interpersonal conflict were also included. Finally, in addition to the military specific questions included in Time 1, we also added several questions about the perceived usefulness of the Marine Corps' core

values training classes and the Crucible experience on personal behavior and commitment to the Marine Corps, the occurrence of hazing during training, and participant satisfaction with recruit training and the participant's personal performance. These latter questions were prompted by our desire to provide the USMC with empirically sound feedback regarding many of their recent training innovations. Their construction was facilitated by the close and collaborative relationship we established with the Marine Corps once our research personnel were installed on Parris Island.

Our Time 2B survey is a 29 page document that is virtually identical to the Time 2 survey except that several additional questions designed to assess adjustment to the civilian environment were added.

The Time 3 survey is an 18 page document that includes many of the same instruments as the Time 2 survey to measure current emotional well being, current physical well being, characteristics of the training environment, and access to social support within the training unit. In addition, questions about family responsibilities were added to the Time 3 survey. The Time 3B survey is similar to the Time 2B survey, except it excludes questions asking about the training environment, since that information was collected previously.

The piloting and refinement of these surveys was a multi-step process. Our surveys were first evaluated by two highly regarded experts in the fields of gender and life stress and health and performance outcomes. After modifying the surveys based on their feedback, we administered all the Time 1, Time 2 and 2B surveys to small groups of male and female recruits on Parris Island. We then conducted a series of confidential focus groups in which their feedback regarding the ease of administration and content relevance of the surveys was obtained. The surveys were revised according to this feedback and then re-administered to new groups of female and male recruits who also participated in focus groups. After a third round of revisions, the surveys were distributed to a number of Marines on Parris Island including commissioned and noncommissioned officers for final feedback.

Implementation

A. Time 1

The final version of our Time 1 survey was administered to a total of 826 female and 1021 male recruits on-site at Parris Island from 5/19-9/30/97 (months 8-11 of the last fiscal year). Data collection was greatly facilitated by the fact that all survey administration sessions (both Time 1 and Time 2) were included in the formalized training schedules of all platoons slated to take part in our study. The Time 1 survey was always administered on Forming Day 5 of recruit training, i.e., the Monday before Training Day 1.

B. Time 2

The final version of our Time 2 survey was administered to the same subjects at the completion of their training. We began in 8/97 and completed administration of the survey in 12/97. The Time 2 survey was always administered two days before graduation (Training Day 62). While the majority of recruits graduate with their original platoon and company, a large number change platoons at least once during training. This "recycling" occurs whenever a recruit is not fit to advance in training for any one of a variety of reasons including injury, inability to master academic material, or failure to meet physical fitness requirements. The phenomenon of recycling and the complications it posed to our data collection was addressed by stamping recruit record books with a seal that identified them as part of our study and asked that our personnel be contacted whenever a recruit was dropped from the platoon. We also had access to the recruit training depot's tracking system, PI ARMS.

C. Attritees

As noted in our research methodology section, any study participant who attrited during recruit training was interviewed by our on-site study personnel prior to discharge. The interview we created is semi-structured and is designed to gather information regarding the recruit's personal experience of recruit training, his/her reasons for leaving, and future plans. It also seeks to solicit continued participation in the study and current mailing addresses are obtained. The interview is partially based on existing Marine Corps exit interviews and includes a brief essay question that asks the recruit to describe in his/her own words his/her reasons for leaving training. As with survey administration, all interviews were conducted by highly trained Ph.D. and Masters level mental health professionals.

All attritees are also administered follow up surveys via mail. Compensation of $20 was provided to attritees for completion of each follow up survey. The first wave of Time 2B surveys was sent out in 8/97 to participants that had begun training in 5/97. Our return rate for these surveys after the first mailing was somewhat low (approximately 40%). A second mailing was done, yielding a total response rate of approximately 60%.

D. Time 3

The first mailing of Time 3 and 3B surveys was sent out between 2/98 and 5/98. Reminder postcards were sent out two weeks after the mailing. If no response was received after one month, a second survey was mailed. The response rate for Time 3 surveys was about 35%, and was about 53% for the 3B respondents. One reason for the relatively low response rate for Time 3 surveys was difficulty locating the respondents. Approximately 13% of Time 3 surveys were returned as undeliverable, and we were unable to obtain correct addresses for these participants. This survey was sent out at a time when many participants were changing duty positions and/or stations, and it

is possible that even more than 13% of the participants never received the survey. In contrast, only 6% of 3B surveys were returned as undeliverable, and our total response rate for this group was comparable to the response rate at Time 2B. The lack of compensation associated with the Time 3 surveys may also have contributed to the low response rate. We will be offering compensation to both Time 4 and 4B participants in an attempt to improve response rates. In addition, we are working more closely with Marine Corps Headquarters to obtain updated addresses and phone numbers for Time 4 participants. The Time 4 and 4B surveys are scheduled to be mailed out in January 1999.

E. Data Management

Because the surveys were created using a scannable format, data entry has proceeded rapidly. Data entry for Time 1, Time 2, and Time 3 is already complete. Currently, we are finalizing the survey that will be sent out at Time 4. We are in the initial stages of preparing a basic manuscript describing the study design, sampling frame and participant characteristics.

F. Preliminary Results

A summary of the demographics of the Time 1 participants is shown in Table 1. The attrition rates for participants while on Parris Island are shown in Table 2. Early analysis of the attrition data shows some differences between attritees and graduates, and that these may vary by gender. For example, male attritees receive significantly lower scores on the AFQT General, the AFQT Elect, AFQT Clerical and the AFQT Mechanical subtests. In contrast, female attritees scored significantly lower on the AFQT Clerical, but not on the other AFQT tests.

G. Next Steps

The Time 4 and 4B surveys will be sent out in January 1999, with data collection scheduled to be completed by Spring 1999. Data entry and analysis will be done in Summer and early Fall 1999. Preparation of manuscripts and the final report will be completed in Fall 1999 and early 2000, with the final report due by March 2000.

Table 1
Summary of Participants

	Male (n=1021)	Female (n=826)
Race (percent)		
Caucasian	66.0	68.0
African American	21.4	20.3
Other	12.6	11.7
Age at entry (percent)		
17	9.7	13.7
18	50.8	50.6
19	21.2	16.8
20+	18.3	18.9

Table 2
Recruit Training Attrition (percent)

	Male	Female
Active duty	12.0	17.2
Reserves	16.0	17.9
90 Day Reserves	14.9	25.0
Overall attrition	12.6	18.1

Table 3
AFQT Scores and Attrition in Male Recruits

AFQT tests (150=maximum for all)	Attrited during recruit training	Graduated from recruit training
AFQT General Score*	103.7	107.2
AFQT Elect Score*	102.9	106.8
AFQT Clerical Score*	104.8	107.1
AFQT Mechanical Score*	100.7	104.2

*Significantly different between attritees and graduates at $p<.05$.

Table 4
AFQT Scores and Attrition in Female Recruits

AFQT tests (150=maximum for all)	Attrited during recruit training	Graduated from recruit training
AFQT General Score	101.3	102.4
AFQT Elect Score	100.7	102.6
AFQT Clerical Score*	108.9	111.7
AFQT Mechanical Score	92.9	93.4

*Significantly different between attritees and graduates at $p<.05$.

References

1. Institute of Medicine. *Recommendations for Research on the Health of Military Women.* Washington, DC: National Academy Press; 1995.

2. Quester AO, Steadman GW. *Enlisted Women in the Marine Corps: First-term Attrition and Long-term Retention.* Alexandria, VA: Center for Naval Analyses; 1990. A230764 CRM-90-71. 40p.

3. Jareb AM. *Marine Corps Entry-Level-Training Attrition.* Alexandria, VA: Center for Naval Analyses; 1996. CRM-96-54. 40p.

4. Rosen LN, Martin, L. The measurement of childhood trauma among male and female soldiers in the U.S. Army. *Unpublished manuscript.*

5. Sheridan JE. Organizational culture and employee retention. *Acad Manage J* 1992; 35(5): 1036-56.

6. Royle, M. H. Factors affecting attrition among marine corps women. San Diego, CA: Navy Personnel Research and Development Center; 1985. 4. Personal communication, Headquarters Marine Corps Manpower Planning.

7. Proctor JH, Lassiter WE, Soyars WE. Prediction of young U.S. Naval officer retention. *Personnel Psychol* 1976; 29(4): 567-81.

8. Fitzgerald L, Shullman SL. Sexual harassment: A research analysis and agenda for the 1990s. Special Issue: Sexual harassment in the workplace. *J Vocat Behav* 1993; 42(1): 5-27.

9. Murdoch M, Nichol KL. Women veterans' experiences with domestic violence and with sexual harassment while in the military. *Arch Fam Med* 1995; 4: 411-8.

10. Culbertson AL, Rosenfeld P. Assessment of sexual harassment in the active-duty Navy. Special Issue: Women in the Navy. *Mil Psychol* 1994; 6(2): 69-93.

11. Briere JN. 1992. Child Abuse Trauma: Theory and Treatment of the Lasting Effects. Newbury Park, CA: Sage.

12. Straus MA, Gelles RJ. 1988. Violence in American families: How much is there and why does it occur? In Troubled Relationships. Families in Trouble Series, Vol 3, (Elam W. Nunnaly, Catherine S. Chilman, Fred M. Cox, eds.), pp.141-62. Newbury Park, CA: Sage.

13. Boudewyn AC, Liem JH. Childhood sexual abuse as a precursor to depression and self-destructive behavior in adulthood. *J Trauma Stress* 1995; 8(3):445-455.

14. Herman J. 1992. Trauma and recovery. New York, NY: Basic Books.

15. Stein JA, Golding JM, Siegel JM, Burnham MA, Sorenson SB. 1988. Long-term psychological sequelae of child sexual abuse: The Los Angeles Epidemiologic Catchment Area Study. In Lasting Effects of Child Sexual Abuse (G.E. Wyatt and G.J. Powell, eds.), pp. 135-154. Newbury Park, CA: Sage.

16. Luntz BK, Widom CS. Antisocial personality disorder in abused and neglected children growing up. *Am J Psychiatry* 1994; 15(5): 670-4.

17. Cottler LB, Compton WM, Mager D, Spitznagel E. Posttraumatic stress disorder among substance abuse users from the general population. *Am J Psychiatry* 1992; 149(5): 664-670.

18. McCord J. A forty year perspective on effects of child abuse and neglect. *Child Abuse Negl* 1983; 7: 265-70.

19. Widom CS. The cycle of violence. *Science* 1989; 244: 160-6.

20. Wyatt GE, Guthrie D, Notgrass CM. Differential effects of women's child sexual abuse and subsequent sexual revictimization. Special Section: Adult survivors of childhood sexual abuse. *J Consult Clin Psychol* 1992; 60(2): 167-173.

21. Crawford SL, Fiedler, ER. Childhood physical and sexual abuse and failure to complete military basic training. *Mil Med* 1992; 157(12): 645-48.

22. Bremner JD, Southwick SM, Johnson DR, Yehuda R, et al. 1993. Childhood physical abuse and combat-related posttraumatic stress disorder in Vietnam veterans. *Am J Psychiatry* 1993; 150(2):235-39.

23. Fontana A, Rosenheck R. Traumatic war stressors and psychiatric symptoms among World War II, Korean, and Vietnam War veterans. Gerontological Society of America (1991, San Francisco, CA). *Psychol Aging* 1994; 9(1): 27-33.

24. Rosenheck R., Fontana A. 1994. Long-term sequelae of combat in World War II, Korea, and Vietnam: A comparative study. In Individual and Community Responses to Trauma and Disaster: The Structure of Human Chaos. (Robert J. Ursano, Brian G. McCaughey, Carol S. Fullerton, Eds.), pp. 330-359. Cambridge, England: Cambridge University Press.

25. Wolfe J, Young BL, Brown PJ, Spiro A. (1993, October).

26. Ochberg F. 1988. *Post-traumatic Therapy and Victims of Violence*. New York, NY: Brunner/Mazel, Inc.

27. Engel CC, Engel AL, Campbell SJ, McFall ME, Russo J, and Katon W. Posttraumatic stress disorder symptoms and precombat sexual and physical abuse in Desert Storm veterans. *J Nerv Ment Dis* 1993; 181(11): 683-88.

28. Personal communication, Russell Leadership Conference, 1995.

29. Harris T, Brown GW, Bifulco AT. Loss of parent in childhood and adult psychiatric disorder: A tentative overall model. *Dev Psychopathology* 1990; 2(3): 311-328.

30. Link BG, Lennon MC, Dohrenwend BP. Socioeconomic status and depression: The role of occupations involving direcction, control, and planning. *Am J Sociology* 1993; 98(6): 1351-1387.

31. Kendler KS, Neale MC, Kessler RC, Heath AC, et al. The clinical characteristics of major depression as indices of the familial risk to illness. *Brit J Psychiatry* 1994; 165(1): 66-72.

32. Zimrin H. A profile of survival. Sixth International Congress of the International Society for Prevention of Child Abuse and Neglect (1986, Sydney, Australia). *Child Abuse Negl* 1986; 10(3): 339-49.

33. Egeland B, Jacobvitz D, Sroufe AL. Breaking the cycle of abuse. *Child Dev* 1988; 59(4): 1080-88.

34. Milner JS, Robertson KR, Rogers DL. Childhood history of abuse and adult child abuse potential. *J Fam Violence* 1990; 5(1): 15-34.

35. Schnurr PP, Aldwin, CM. 1993. Military service: Long term effects on adult development. In Encyclopedia of Adult Development (Robert Kastenbaum, ed.). Pheonix, AZ: Oryx Press.

36. Spiro A. Developmental aspects of military service in older men. *Submitted for publication* 1995.

37. Dohrenwend BP. Sociocultural and social-psychological factors in the genesis of mental disorders. J Health Soc Behav 1975; 16(4):365-92.